REMARKS

This Amendment is filed in response to the non-final Office Action dated November 6, 2008, and is respectfully submitted to be fully responsive to the rejections raised therein. Accordingly, favorable reconsideration on the merits and allowance are respectfully requested.

In the present Amendment, claim 1 was amended by inserting ---only--- before the recitation "one hollow part", and ---only one--- before "hollow part" to make clear that each of the polytrimethylene terephthalate hollow composite staple fibers has only one hollow part formed within each of the composite staple fiber. Claims 5 and 6 were amended similarly by inserting ---only one--- before the recitation "hollow part". No new matter has been added.

Entry of the Amendment is respectfully submitted to be proper. Upon entry of the Amendment, claims 1, 3, 5 and 6 will continue to be all the claims pending in the application.

I. Response to Rejection Under 35 U.S.C. § 103(a)

Claims 1 and 5-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,306,499 (Ochi) in view of U.S. Patent 6,455,156 (Tanaka).

Applicant traverses and respectfully requests reconsideration and withdrawal of the rejection in view of the amendment to the claims and in further view of the following remarks.

To make more clear that each of the polytrimethylene terephthalate hollow composite staple fibers has only one hollow part formed within each composite staple fiber and extending along the longitudinal axis of each composite staple fiber, claim 1 has been amended to recite "only one hollow part".

The side-by-side or eccentric core-in-sheath hollow composite staple fibers, as recited in claim 1, have the required Features (1) to (4), which are listed below as follows:

Feature (1): One of the two polytrimethylene terephthalate resin components from which each composite fiber is formed has an intrinsic viscosity in the range of from 0.50 to 1.40 dl/g, and the other one of the two polytrimethylene terephthalate resin components has an intrinsic viscosity in the range of from 0.40 to 1.30 dl/g, and 0.1 to 0.5 dl/g below that of the polytrimethylene terephthalate resin having the intrinsic viscosity of 0.50 to 1.40 dl/g. The intrinsic viscosities are determined in o-chlorophenol at a temperature of 35°C.

Feature (2): The only one hollow part in each composite fiber is located within the high intrinsic viscosity polytrimethylene terephthalate resin part of each hollow composite staple fiber.

Feature (3): The cross section of the only one hollow part in each composite fiber has a cross-sectional area corresponding to 2 to 15% of the total cross-sectional area of the hollow composite staple fiber.

Feature (4): The hollow composite staple fibers exhibit an average web area thermal shrinkage of 30% to 60% determined by such a measurement that the composite staple fibers having a fiber length of 51 mm are formed into a web having a basis mass of 30 g/m^2 by a roller carding machine, a plurality of specimens having dimensions of 20 cm x 20 cm are prepared from the web, the specimens are heat-treated in a hot air circulation dryer at a temperature of 120°C for 10 minutes, to allow the specimens to freely shrink, the web area thermal shrinkages of the specimens are determined in accordance with the equation (1):

$$\text{Web area thermal shrinkage (\%)} = [(A - B)/A] \times 100 \quad (1)$$

wherein A represents an area of each specimen before the heat-treatment and B represents an area of the specimen after the heat-treatment, and an average of the resultant web area thermal shrinkages of the specimens is calculated.

In the side-by-side or core-in-sheath hollow composite staple fibers, as recited in the amended claim 1, the combination of Features (1) to (3) together enables the resultant hollow composite staple fibers to exhibit an average web area thermal shrinkage of 30 to 60% (Feature (4)). The average web area thermal shrinkage is an index of the latent crimping property of the hollow composite staple fibers. Feature (4) of the hollow composite staple fibers, as recited in amended claim 1, enables the resultant hollow composite staple fiber woven, knitted or non-woven fabrics therefrom to exhibit high bulkiness and stretchability.

If the hollow composite staple fibers do not satisfy some of Features (1) to (3) and thus, the average web thermal shrinkage is more than 70%, the resultant crimped composite staple fibers will have a plurality of small spiral crimps and exhibit an insufficient bulkiness and hard hand. Also, if the average web thermal shrinkage is less than 30%, the latent crimps of the resultant hollow composite staple fibers cannot be sufficiently realized and the resultant hollow composite staple fibers exhibit poor stretchability.

U.S. Patent 6,306,499 B1 (Ochi)

Ochi discloses a soft stretch yarn comprising polyester conjugate fibers having a side-by-side or eccentric core-in-sheath structure formed from a polyester component having a high melt viscosity and another polyester component having a low melt viscosity. The conjugate fibers of Ochi exhibit a soft stretching property.

Various fiber cross-sectional profiles of the side-by-side or eccentric core-in-sheath conjugate fibers are illustrated in Figs. 3A-3J of Ochi.

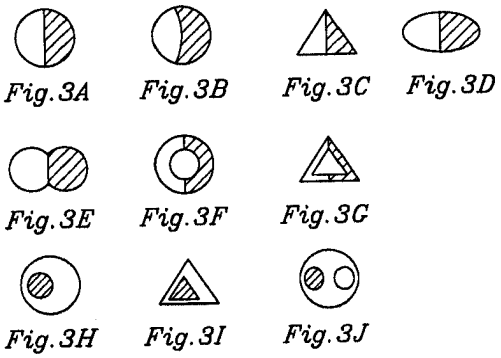


Fig.3A Fig.3B Fig.3C Fig.3D

Fig.3E Fig.3F Fig.3G

Fig.3H Fig.3I Fig.3J

Applicant respectfully submits that in the cross-sectional profiles of the side-by-side or eccentric core-in-sheath conjugate fibers as shown in Figs. 3A to 3E, 3H and 3I of Ochi, there is no hollow part portion provided.

In the fiber cross-sectional shapes in Figs. 3F and 3G, a hollow part is formed between a hatched component part and a non-hatched component part, but not within one of the two component parts.

Furthermore, Fig. 3J shows a cross-sectional profile of a hollow core-in-sheath conjugate fiber wherein, a hatched core part is located in a non-hatched sheath part and a hollow is located in the non-hatched sheath part. Ochi does not particularly explain Fig. 3J, and thus the particular types of polyesters for the hatched core part and the non-hatched sheath portion are not clear. Another cross-sectional profile most close to that of Fig. 3J is shown in Fig. 3H in Ochi. Fig. 3H shows a cross-sectional profile of an eccentric core-in-sheath conjugate fiber in which a hatched core part is located in a non-hatched sheath part and no hollow part is formed. This type of conjugate fiber is described in Example 8 in column 14, lines 37 to 54 of Ochi. This conjugate fiber as shown in Fig. 3H is formed from 60% by weight of a sheath part comprising a PET having a melt viscosity of 400 poise and 40% by weight of a PTT having a melt viscosity of 700 poise.

Namely, in the conjugate fiber as shown in Ochi's Fig. 3H, the hatched core part is formed from a high melt viscosity PTT and the non-hatched sheath part is formed from a low melt viscosity PET.

In view the explanation of the Drawing in Fig. 3H, it is clear that in the conjugate fiber having the cross-sectional profile as shown in Fig. 3J, the hollow part is formed in the low melt viscosity sheath part, but not in the high melt viscosity core part.

For the above-mentioned reasons, Ochi does not teach or suggest that in a hollow side-by-side or eccentric core-in-sheath conjugate fiber, the hollow part is formed within the high melt viscosity polyester part. Generally, the higher the melt viscosity of a polyester polymer, the higher the intrinsic viscosity of the polyester polymer.

Accordingly, Ochi does not teach or suggest that in a hollow side-by-side or eccentric core-in-sheath conjugate fiber, the only one hollow part should be formed within the high intrinsic viscosity PTT part. Namely, Feature (2) of the present invention, as set forth in the amended claim 1, is not taught or suggested in Ochi.

U.S. 6,455,156 (Tanaka)

Tanaka discloses an islands-in-sea type composite fiber having, in a cross section thereof, a sea portion formed from a thermoplastic polymer, such as a polyolefin or polyester fiber; and 7 or more island portions formed from a water-soluble polymer, such as polyvinyl alcohol.

When the islands-in-sea type composite fiber is treated in hot water, the water-soluble polymer island portions are dissolved and removed and converted to 7 or more hollows.

Tanaka does not teach or suggest the hollow composite staple fibers having a side-by-side or eccentric core-in-sheath composite fiber structure provided with only one hollow part.

Therefore, Tanaka cannot teach or suggest how to provide composite staple fibers wherein only one hollow part in one of two polymer component parts different in intrinsic viscosity from each other for the side-by-side or eccentric core-in-sheath composite fiber. Namely, Tanaka fails to teach Features (1) and (2) of the composite fiber of the presently claimed invention, and therefore does not cure the deficiencies of Ochi as a reference.

The Combined Teachings of Ochi and Tanaka

Applicant respectfully submits that if the 7 or more hollow parts as taught in Tanaka were to be introduced into the conjugate fibers as illustrated in Fig. 3J of Ochi, the 7 or more hollow parts would be formed within the non-hatched part of Fig. 3J of Ochi, which is formed from a low melt viscosity polymer. Thus the resultant 7 or more hollowed conjugate fibers would not satisfy Feature (2), which is recited in the present claim 1. Also, neither of Ochi nor Tanaka teaches or suggests Feature (4) as recited in amended claim 1.

Accordingly, Ochi, even combined with Tanaka does not render the presently claimed invention, as recited in present claim 1, obvious. Therefore, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) should be withdrawn.

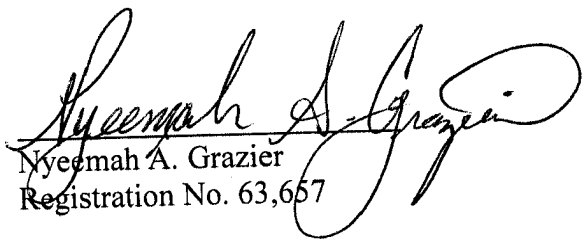
II. Conclusion

In view of the above, reconsideration and allowance of claims 1, 3, 5 and 6 this application are now believed to be in order, and such actions are hereby earnestly solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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